Multiple choice section

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Answer | A | B | C | C | B | A | D | B |

Question 1 [6.1]

A

The opposite side is furthest from the angle, but not the hypotenuse.

Question 2 [6.1]

B

The hypotenuse is the longest side and is always opposite the right-angle.

Question 3 [6.1]

C

tan (θ) =

Locate the given angle, it is marked θ.

The adjacent side, the one next to the angle is labelled 7 cm. The side labelled 12 cm is opposite the angle.

The trigonometric function to use is tan.

Question 4 [6.1]

C

cos (α) =

Locate the given angle, it is marked α.

The hypotenuse (opposite the right-angle) is labelled 12 m. The side labelled 5 m is adjacent to the angle.

The trigonometric function to use is cos.

Question 5 [6.2]

B

cos (33) = 

x = 25 × cos (33)

x = 20.966…

x = 21

Question 6 [6.2]

A

tan (42) = 

y = 

y = 18.88

y = 19

Question 7 [6.3]

D

Locate the given angle, it is marked θ.

The hypotenuse (opposite the right-angle) is labelled 11 m. The side labelled 4 m is adjacent to the angle.

The trigonometric function to use is cos.

cos (θ) =

cos (θ) =

θ = cos-1 

θ = 68.676…

θ = 69 (to the nearest degree)

Question 8 [6.5]

B

Compass bearings start from north or south only.

This one starts from south.

Calculate the angle between south and the bearing.

90 – 25 = 65

As a compass bearing this is S65E.

Multiple-choice total marks: 8

Short answer section

Question 9 4 marks [6.2, 6.3]

(a)    


(b) θ = sin-1   
θ = 25.9444  
θ = 26 (to the nearest degree)

Question 10 4 marks [6.2, 6.3]

(a) sin (55.8) =  
x = 32 × sin (55.8)  
x = 26.466…  
x = 26.5 m (1 d.p.)

(b) tan (θ) =    
θ = tan-1   
θ = 29.511…  
θ = 29.5 (1 d.p.)

Question 11 2 marks [6.4]

Identify the trig ratio for which you have the required information.

From the angle of 48, you have the opposite side at 105 cm and the hypotenuse is labelled x. The correct ratio is sine.

sin (48) = 

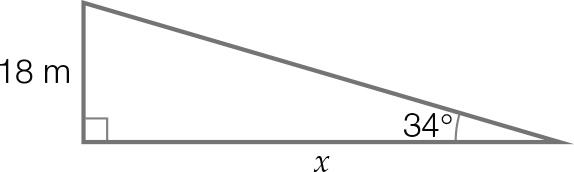
x = 

x = 141.291…

x = 141 cm

Question 12 2 marks [6.4]

Identify the trig ratio for which you have the required information. From the angle of 34, remember that this is the same as the angle at bottom left of the triangle.



You have the opposite side at 18 m and the adjacent side is labelled x. The correct ratio is tan.

tan (34) = 

x = 

x = 26.686…

x = 26.7 m

Question 13 2 marks [6.5]

(a) Subtract 12 from 90 to find the angle from south to the bearing.  
90 − 12 = 78  
Use this to describe the bearing from north to west: S78°W

(b) To write the true bearing, add all of the degrees to the bearing line.   
180 + 78 = 258°  
Use this to write the true bearing: 258°T

Question 14 4 marks [6.5]

(a) tan (38) =    
x = 13 × tan (38)   
x = 10.156…  
x = 10.2 km (1 d.p.)

(b) cos (38) =    
y =    
y = 16.497…  
y = 16.5 km

Question 15 7 marks [6.6]

(a) Let h be the height of the wall.  
  
The height is 2.45 m.

(b) Let d be the distance from the foot of the ladder to the top of the wall.  
  
The ladder overhangs by:   
7 – 4.27 = 2.73 m  
= 273 cm

(c) Let t be the height of the tree.  
  
The height of the tree is 329 cm  
329 – 245 = 84 cm   
It is 84 cm more than the height of the wall.

Short answer total marks: 25

Extended response section

Question 16 5 marks [6.6]

(a)

  
The angle is 26, correct to the nearest degree.

(b)

  
Extra distance dived:   
7.2 – 5.7 = 1.5 m

Question 17 6 marks [6.6]

(a) Let x be the length of cable plus the height of container.  
  
Length of cable is:  
15.52 + 1.5 = 17.02 m

(b) The horizontal distance of the crane from the container before it moves is .  
The new distance of the crane from the container is 12.13 – 5 = 7.13 m.  
Let θ be the required angle.  


Extended answer total marks: 11

TOTAL test marks: 44